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English Learning Motivation and Burnout among Chinese Senior High School Students: A Self-Determination Theory Perspective

Han Cui [a], Honggang Liu [b*]

[a] *East China Normal University, Shanghai, CHINA*
[b] *Soochow University, Suzhou, CHINA*

[*]*Corresponding author:* Honggang Liu. *E-mail address:* liuhonggang@suda.edu.cn

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abstract

Background: Given the growing significance of language learners' psychological well-being, English learning burnout has garnered increasing research attention due to its detrimental effects on learning outcomes. Previous studies have explored predictors of burnout, with English learning motivation receiving particular attention as an influence. However, the associations between motivational subtypes and burnout within self-determination theory remain underexplored.
Aims: This study aims to examine the levels of Chinese senior high school students' English learning burnout and motivation, and their gender and grade differences, and to test the relationships between motivational subtypes and two burnout components (exhaustion and demotivation).
Methods: The English Learning Burnout Scale and the English Learning Motivation Scale were administered to 599 students from a rural public high school in Jiangsu Province, China. Data were analyzed using SPSS 27.0 and Mplus 8.3, with descriptive statistics, independent samples t-tests, one-way ANOVA, and structural equation modeling.
Results: Results showed overall low burnout and moderate motivation; Grade 2 students scored highest in burnout and lowest in motivation, while males reported significantly higher burnout than females. Moreover, autonomous motivation was negatively associated with both exhaustion and demotivation, whereas introjected regulation was positively associated with both. Unexpectedly, external regulation was also negatively related to burnout, a finding that warrants further investigation in the Chinese high-stakes examination context.
Conclusion: These findings enrich the understanding of the motivational mechanisms underlying English learning burnout and offer practical insights for alleviating burnout.

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1. Introduction

In the realm of second language acquisition, the psychological states of learners play a pivotal role in shaping their learning outcomes. Among these states, English learning burnout and motivation have garnered significant attention from educators and researchers (Cong et al.,

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2024; Liu & Zhong, 2022; Liu et al., 2024; Liu et al., 2025; Xu et al., 2022; Yu et al., 2022). English learning burnout, characterized by emotional exhaustion, cynicism, and reduced efficacy, is particularly prevalent among senior high school students in China (C. Li et al., 2024; Liu & Zhong, 2022). This prevalence is largely attributable to the high-stakes academic context of the Chinese National College Entrance Examination (Gaokao), where the intense pressure to achieve academic excellence often eclipses the intrinsic pleasure of English learning. On the other hand, English learning motivation serves as a critical driver of successful English language learning, influencing learners' persistence, engagement, and emotional well-being (Hsu, 2025; Liao et al., 2018; Liu & Du, 2024; Sun et al., 2022; Zhang & Wang, 2023).

To date, a negative correlation between English learning burnout and motivation has been consistently observed at the global level of analysis. For instance, based on questionnaire data from 580 EFL learners from multiple universities in China, Ma (2024) employed multiple regression and structural equation modeling to demonstrate that both academic self-efficacy and academic motivation served as significant negative predictors of academic burnout. Similarly, in a cross-cultural comparison of Chinese and Malaysian college students majoring in sports, Xu et al. (2021) found a significant negative correlation between learning motivation and learning burnout. Yu et al. (2022) also found that language learning motivation was significantly negatively correlated with overall burnout among EFL undergraduates, a protective effect that was moderated by maladaptive emotion regulation strategies. When the analysis is extended to specific motivational subtypes, however, a more complex pattern emerges. In a survey of 64 senior English majors from a Chinese independent college, Chen and Lai (2026) found that while academic motivation negatively predicted burnout, amotivation and self-efficacy emerged as significant positive predictors, and neither intrinsic nor extrinsic motivation showed a significant association with burnout when examined as separate subtypes.

Despite the widely reported negative correlation between motivation and burnout, several limitations leave the mechanisms underlying this relationship underspecified. First, existing relevant studies have largely focused on college students, whereas senior high school students, who are navigating the dual challenges of adolescent psychological development and the high-stakes Gaokao, remain an under-researched population (Wu et al., 2024). Second, prior research has predominantly conceptualized academic burnout through the classic three-dimensional structure, namely emotional exhaustion, cynicism, and reduced efficacy; few studies have adopted the two-dimensional conceptualization of English learning burnout (i.e., exhaustion and demotivation) validated specifically among Chinese senior high school EFL learners (Liu & Zhong, 2022), leaving the motivational antecedents of these two burnout dimensions underexplored. Third, this body of research has rarely drawn on a coherent theoretical framework that distinguishes qualitatively different types of motivation. Self-determination theory (SDT; Deci & Ryan, 2000) offers such a framework by conceptualizing motivation along a continuum of self-determination; however, it has rarely been applied to unpack the motivation–burnout link in Chinese senior high school EFL contexts.

To address these gaps, this study employs structural equation modeling (SEM) to test the predictive paths between motivation dimensions and burnout dimensions based on SDT. Theoretically, this study contributes to the understanding of the motivation–burnout relationship by disaggregating how distinct motivation subtypes differentially impact exhaustion and demotivation among senior high school students. Practically, the findings are

expected to inform targeted interventions for alleviating burnout and promoting autonomous learning.

1.1 English learning burnout

English learning burnout has garnered increasing attention in educational research, particularly in second language acquisition (Cong et al., 2024; Derakhshan et al., 2022; Li & Zhang, 2024). English learning burnout is defined as "a negative chronic psychological and emotional state that students feel in relation to their foreign language learning and foreign language class" (Li et al., 2024, p. 915). Most prior studies have conventionally conceptualized it as a three-dimensional construct comprising emotional exhaustion, cynicism, and reduced efficacy (Li et al., 2024; Liu et al., 2021). However, within the Chinese EFL context for senior high school students, Liu and Zhong (2022) identified and validated a context-specific two-dimensional structure of English learning burnout through exploratory and confirmatory factor analyses. The exhaustion dimension is directly inherited from emotional exhaustion in the traditional three-dimensional framework, whereas the demotivation dimension is generated by integrating cynicism and reduced efficacy. Consequently, this two-dimensional structure is adopted in the present study.

Notably, senior high school students are particularly vulnerable to English learning burnout due to the intense academic pressure associated with college entrance examinations (Liu & Zhong, 2022; Liu et al., 2024; H. Wu et al., 2024). Liu et al. (2024) found that Chinese senior high school students often view English learning as a compulsory task with limited autonomy. This aligns with findings from H. Wu et al. (2024), who demonstrated the negative impacts of English learning burnout on senior high school students' academic achievement. Moreover, Liu and Zhong (2022) found that burnout manifested primarily as demotivation rather than exhaustion among Chinese senior high school students. Furthermore, prior research has identified multiple factors contributing to English learning burnout, including academic motivation and self-efficacy (Chen & Lai, 2026), perceived teacher support and academic buoyancy (Li et al., 2025), teacher–student dynamics and emotional intelligence (Li & Zhang, 2024), learning enjoyment and L2 grit (Song, 2024), and English language learning anxiety (Zhang & Lai, 2024). These findings underscore the need for a deeper insight into English learning burnout in the Chinese senior high school context.

1.2 English learning motivation

SDT proposed by Ryan and Deci (2000b) offers a systematic and nuanced framework for understanding the structure of motivation. SDT conceptualizes motivation as a continuum that extends from amotivation through extrinsic motivation to intrinsic motivation, with the degree of self-determination gradually increasing along this spectrum (Ryan & Deci, 2000a). Intrinsic motivation is defined as "doing an activity for the inherent satisfaction of the activity itself" (Ryan & Deci, 2000b, p. 71), entailing engagement driven by inherent interest and enjoyment (Deci & Ryan, 2000). Extrinsic motivation refers to the "performance of an activity in order to attain some separable outcome" (Ryan & Deci, 2000b, p. 71). Based on differing levels of autonomy, this form of motivation is further categorized into four distinct subtypes: external regulation, introjected regulation, identified regulation, and integrated regulation. Previous studies (e.g., Oga-Baldwin & Nakata, 2017) have consistently shown that intrinsic motivation, identified regulation, introjected regulation, and external regulation are the predominant

motivational constructs among students. As the present study focuses on these four most commonly examined constructs in EFL research, integrated regulation is excluded to align with the research design and measurement instrument. Accordingly, a four-dimensional framework based on SDT, encompassing intrinsic motivation, identified regulation, introjected regulation, and external regulation, is employed to investigate senior high school students' English learning motivation.

English learning motivation is shaped by a multifaceted interplay of internal and external factors, reflecting the complexity of the learning process (Teng & Yang, 2023; Yu, 2023; Yu et al., 2023; Zhang & Wang, 2023). At the individual level, Teng and Yang (2023) established that self-efficacy is vital for sustaining motivation in online English learning, as it boosts learners' confidence to tackle challenges. Zhang and Wang (2023) further identified personality traits such as openness and conscientiousness as key internal drivers that can enhance motivation and academic performance. Beyond these learner-internal characteristics, external factors also play a critical role. Yu (2023) showed that gamified platforms such as Kingsoft Powerword can make learning more engaging, thereby increasing motivation, while Yu et al. (2023) found that mobile learning platforms enhance motivation by providing flexible and convenient learning opportunities. In addition to these internal and external antecedents, English learning motivation is also closely linked to key learning outcomes, such as students' emotional responses, self-regulated learning strategies, and language learning anxiety (Ni & Xu, 2025; Nie et al., 2024; Zhang & Lai, 2024). Specifically, highly motivated students experience both positive and negative emotions toward written corrective feedback more intensely than their less motivated peers (Ni & Xu, 2025). They are also more likely to adopt effective self-regulated learning strategies and achieve higher academic outcomes (Nie et al., 2024). Conversely, motivation appears to be negatively associated with out-of-class learning anxiety, suggesting that anxious learners may be less willing to engage in autonomous English activities (Zhang & Lai, 2024). Taken together, these findings underscore the complex interplay between motivation, individual differences, contextual factors, and broader learning outcomes, highlighting the need for a multidimensional understanding of English learning motivation.

1.3 The relationship between English learning burnout and motivation

Prior research has provided empirical evidence for the relationship between motivation and burnout across different educational settings (Ma, 2024; Xu et al., 2021; Felaza et al., 2020; Yu et al., 2022; Song, 2024; Chen et al., 2023). Ma (2024) demonstrated that academic motivation and self-efficacy were negatively linked to academic burnout in Chinese EFL students. Similarly, Xu et al. (2021) found a negative correlation between learning motivation and learning burnout among Chinese and Malaysian students. Felaza et al. (2020) also found a negative association between motivation type and burnout among Indonesian students. Moreover, Yu et al. (2022) identified maladaptive emotion regulation strategies as a moderating factor that can weaken the protective effect of motivation on burnout. Song (2024) further explored the interactions between learning enjoyment, motivation, burnout, and grit, finding that foreign language learning enjoyment positively influenced motivated behavior while reducing burnout. Chen et al. (2023) found that academic motivation and social support mediated and moderated the link between life satisfaction and learning burnout.

While these studies have advanced the understanding of the motivation-burnout link, most have examined motivation as a global construct without distinguishing between qualitatively different subtypes. Self-determination theory (SDT) offers a suitable framework for making such distinctions (Deci & Ryan, 2000; Ryan & Deci, 2017). According to SDT, the satisfaction of basic psychological needs for autonomy, competence, and relatedness promotes autonomous motivation, which encompasses intrinsic motivation and identified regulation. When these needs are frustrated, however, learners are more likely to develop controlled motivation (introjected and external regulation) (Ryan & Deci, 2017). These two broad categories are theorized to have divergent effects on learner outcomes: autonomous motivation promotes positive emotions, vitality, and resilience, while controlled motivation generates internal tension, anxiety, and energy depletion, thereby heightening vulnerability to burnout symptoms.

However, despite the theoretical and empirical groundwork laid by previous studies, the association between SDT-based motivation subtypes and burnout components remains under-investigated among Chinese senior high school students, who face the dual pressures of adolescent psychological development and the high-stakes Gaokao. Grounded in SDT and previous empirical studies, the present study posits that four subtypes of English-learning motivation, namely intrinsic motivation, identified regulation, introjected regulation, and external regulation, produce different predictive effects on the two burnout dimensions: exhaustion and demotivation. Specifically, autonomous motivation, which encompasses intrinsic motivation and identified regulation, is hypothesized to negatively predict both exhaustion and demotivation. By contrast, controlled motivation, which comprises introjected regulation and external regulation, is expected to positively predict these two burnout outcomes.

By testing this association with a sample of Chinese senior high school students, this study aims to deepen theoretical understanding of the link between motivation and burnout in English language learning. It also offers practical implications for educators and policymakers to design instructional strategies that foster autonomous motivation and reduce learning burnout in this learner population.

In summary, this study addresses the following research questions:

(1) What are the levels of senior high school students' English learning burnout in terms of exhaustion and demotivation?

(2) What are the levels of senior high school students' English learning motivation in terms of intrinsic motivation, identified regulation, introjected regulation, and external regulation?

(3) How do the dimensions of senior high school students' English learning motivation affect the dimensions of their English learning burnout?

2. Methods

2.1 Research participants

This study employed convenience sampling to ensure greater accessibility to the target population (Rose et al., 2019). A total of 650 students from a rural public senior high school in Jiangsu Province, China, were initially recruited across three grade levels to complete a questionnaire survey regarding their English learning burnout and motivation. Given the intensive academic pressure and demanding schedules associated with preparation for the National College Entrance Examination, access to Grade 3 students was more limited than that

for Grades 1 and 2. Accordingly, 230 questionnaires were distributed to Grade 1, 230 to Grade 2, and 190 to Grade 3, with 225, 223, and 170 completed questionnaires collected, respectively, yielding an overall response rate of 95.1%. After excluding incomplete or inattentively completed responses, 599 valid questionnaires were retained for data analysis. The final valid sample comprised 221 Grade 1 students (36.9%), 217 Grade 2 students (36.2%), and 161 Grade 3 students (26.9%), with 285 male participants (47.6%) and 314 female participants (52.4%) (see Table 1 for details).

Table 1. Basic information of the participants

	Male		Female		Total
	N	%	N	%	n
Grade 1	109	49.3	112	50.7	221
Grade 2	104	47.9	113	52.1	217
Grade 3	72	44.7	89	55.3	161
Total	285	47.6	314	52.4	599

2.2 Research instrument

The study integrated two instruments: the English Learning Burnout Scale (ELBS) and the English Learning Motivation Scale (ELMS). Both scales were translated into Chinese and back-translated into English by bilingual researchers following standard back-translation procedures.

2.2.1. English Learning Burnout Scale (ELBS)

The English Learning Burnout Scale was adapted from Liu and Zhong (2022), which has been validated in the Chinese senior high school EFL context. The scale consists of 10 items rated on a 5-point Likert scale, divided into two dimensions: exhaustion (4 items) and demotivation (6 items). The results of CFA in our study also reported a satisfactory fit for the expected two-dimensional structure (CFI = 0.972, TLI = 0.961, RMSEA = 0.057, SRMR = 0.035). The Cronbach's alpha was 0.941 for exhaustion, 0.927 for demotivation, and 0.951 for the overall scale, suggesting good internal consistency. Convergent validity was supported by standardized factor loadings ranging from 0.663 to 0.949 (all $p < .001$), and by CR and AVE values of 0.956 and 0.843 for exhaustion and 0.936 and 0.761 for demotivation, respectively. Discriminant validity was supported by the Fornell–Larcker criterion: the square roots of AVE for exhaustion (0.918) and demotivation (0.872) both exceeded their inter-factor correlation.

2.2.2. English Learning Motivation Scale (ELMS)

The English Learning Motivation Scale was derived from Oga-Baldwin and Nakata (2017), adjusted to align with the Chinese senior high school English learning context. The final scale comprises 12 items rated on a 5-point Likert scale, covering four dimensions: intrinsic motivation (3 items), identified regulation (3 items), introjected regulation (3 items), and external regulation (3 items). The CFA results in our study indicated an acceptable fit for the four-factor structure (CFI = 0.956, TLI = 0.938, RMSEA = 0.071, SRMR = 0.064). Cronbach's alpha for the four subscales ranged from 0.762 to 0.936, and 0.872 for the total scale, indicating acceptable to good internal consistency. Convergent validity was supported by standardized factor loadings ranging from 0.669 to 0.921 (all $p < .001$), and by CR and AVE values of 0.915 and 0.782 for intrinsic motivation, 0.938 and 0.824 for identified regulation, 0.911 and 0.776

for introjected regulation, and 0.899 and 0.687 for external regulation. Discriminant validity was supported by the Fornell–Larcker criterion, as the square roots of AVE for all four dimensions (ranging from 0.829 to 0.908) exceeded their inter-factor correlations.

2.3. Data collection

This study adopted a cross-sectional correlational design. A paper-based survey was administered at a rural public senior high school in Jiangsu Province, Southeast China. The study was conducted in accordance with the ethical guidelines of the participating institution. Written informed consent was obtained from the students' parents or guardians, and assent was obtained from the students themselves. Students were informed that their participation was voluntary and anonymous, and that all responses would be used exclusively for academic purposes. With the assistance of English teachers, the researchers distributed questionnaires to 650 students and collected them on site upon completion. Inattentive responses were identified based on missing items and invariant response patterns across an entire dimension. Questionnaires that met these criteria were excluded, yielding 599 valid responses for analysis.

2.4. Data analysis

All statistical analyses were conducted using SPSS 27.0 and Mplus 8.3.

First, the normality of the sample data was assessed from both univariate and multivariate perspectives for all 22 items of the ELBS (Q1–Q10) and ELMS (Q11–Q22). For the univariate normality test, skewness and kurtosis values were examined, with acceptable cutoffs set at ±3 for skewness and ±8 for kurtosis (Kline, 2016). Multivariate normality was evaluated via Mardia's test (Mardia, 1974), with the assumption considered tenable when the *p*-values for both multivariate skewness and kurtosis exceeded 0.05.

Consistent with these criteria, the univariate normality tests showed that the skewness and kurtosis values of all 22 items fell within the acceptable ranges (ELBS: skewness = 0.475–1.053, kurtosis = -1.002–0.245; ELMS: skewness = -1.182–0.545, kurtosis = -1.258–0.724), demonstrating that the data satisfied the univariate normality assumption. However, Mardia's multivariate normality test revealed that both the skewness and kurtosis statistics yielded *p*-values below 0.05. Consequently, the sample data failed to demonstrate multivariate normality. As noted by Alamer (2022), "When the assumption of normality is not met, analysts are advised to use estimators that are robust against non-normality such as the maximum likelihood estimation with robust standard errors (MLR)" (p. 6). Thus, the MLR estimator was used for subsequent CFA and SEM analyses.

Second, CFA was conducted using the MLR estimator to examine the reliability and validity of the ELBS and ELMS (see Section 2.2). To address Research Questions 1 and 2, descriptive analyses were performed in SPSS to profile students' English learning burnout and motivation levels, and independent samples *t*-tests and one-way ANOVA were run to examine gender and grade differences in these two variables. For Research Question 3, a structural equation model was built in Mplus 8.3 to examine the associations between motivation dimensions and burnout dimensions, with model fit evaluated on the criteria of CFI > 0.90, TLI > 0.90, RMSEA < 0.08, and SRMR < 0.08 (Kline, 2016).

3. Results

3.1 Levels of students' English learning burnout

Table 2 presents the descriptive statistics for students' English learning burnout at both the global and sub-dimensional levels. Overall, participants reported a low level of global burnout (M = 2.26, SD = 1.04). At the dimensional level, exhaustion (M = 2.11, SD = 1.10) and demotivation (M = 2.35, SD = 1.10) both fell within the low range (Oxford & Burry-Stock, 1995). This indicates that senior high school students in this sample did not experience severe burnout in their English learning, with demotivation being relatively more pronounced than exhaustion.

Table 2. The results of descriptive analysis for ELB

Variable	Min	Max	*M*	*SD*
Exhaustion	1.00	5.00	2.11	1.10
Demotivation	1.00	5.00	2.35	1.10
Global Burnout	1.00	5.00	2.26	1.04

Independent samples *t*-test and one-way ANOVA were conducted to explore gender and grade differences in students' global English learning burnout. As shown in Table 3, male students reported significantly higher global burnout than female students (t = 3.34, p < .001, d = 0.27, 95% CI [0.12, 0.45]). For grade differences, Levene's test indicated that the homogeneity of variances assumption was violated (p < .001); therefore, Welch's ANOVA and Tamhane's T2 post-hoc tests were used.

Table 3. The results of the Independent Samples T-test for ELB

Variable	Group	*n*	*M*	*SD*	*T*	*p*	*d*
Gender	Male	285	2.41	1.09	3.34	< .001	0.27
	Female	314	2.12	0.98			

Meanwhile, Table 4 reveals a significant main effect of grade on global burnout (F = 28.28, p < .001). Tamhane's T2 pairwise comparisons showed that Grade 2 students (M = 2.64, SD = 1.13) reported significantly higher burnout than both Grade 1 students (mean difference = 0.75, p < .001, 95% CI [0.51, 0.98]) and Grade 3 students (mean difference = 0.42, p < .001, 95% CI [0.17, 0.67]), and Grade 3 students also reported significantly higher burnout than Grade 1 students (mean difference = 0.32, p = .002, 95% CI [0.10, 0.55]). This suggests that Grade 2 students are particularly vulnerable to burnout, whereas Grade 1 students are the least affected.

Table 4. The Results of One-way ANOVA for ELB

Variable	Group	*n*	*M*	*SD*	*F*	*p*
Grade	Grade 1	221	1.90	0.93	28.28	< .001

Variable	Group	*n*	*M*	*SD*	*F*	*p*
	Grade 2	217	2.64	1.13		
	Grade 3	161	2.22	0.87		

3.2. Levels of Students' English Learning Motivation

Table 5 reports the descriptive statistics for students' English learning motivation. Overall, participants reported a moderate level of global motivation (M = 3.35, SD = 0.84). Regarding the four subscales, intrinsic motivation (M = 3.80, SD = 1.09) and identified regulation (M = 3.91, SD = 1.10) fell within the high range, whereas introjected regulation (M = 2.94, SD = 1.26) and external regulation (M = 2.74, SD = 1.17) fell within the moderate range (Oxford & Burry-Stock, 1995). This result implies that students' motivation to learn English is primarily driven by autonomous rather than controlled forms of motivation.

Table 5. The Results of descriptive analysis for ELM

Variable	Min	Max	*M*	*SD*
Intrinsic motivation	1.00	5.00	3.80	1.09
Identified regulation	1.00	5.00	3.91	1.10
Introjected regulation	1.00	5.00	2.94	1.26
External regulation	1.00	5.00	2.74	1.17
Global motivation	1.00	5.00	3.35	0.84

Next, tables 6 and 7 present the results of the independent samples *t*-test and one-way ANOVA examining gender and grade differences in senior high school students' global English learning motivation. Table 6 revealed no significant gender difference in overall English learning motivation (t = -1.55, p = .121, d = -0.13, 95% CI [−0.29, 0.03]), although female students (M = 3.40, SD = 0.77) reported slightly higher motivation than male students (M = 3.29, SD = 0.90). For grade differences, Levene's test indicated that the homogeneity of variances assumption was violated (p = .026); therefore, Welch's ANOVA and Tamhane's T2 post-hoc tests were used. Table 7 shows a significant main effect of grade on global English learning motivation (F= 16.49, p < .001). Tamhane's T2 pairwise comparisons indicated that Grade 1 students (M = 3.60, SD = 0.86) reported significantly higher motivation than both Grade 2 students (M = 3.17, SD = 0.86; mean difference = 0.44, p < .001, 95% CI [0.24, 0.63]) and Grade 3 students (M = 3.24, SD = 0.70; mean difference = 0.36, p < .001, 95% CI [0.17, 0.55]). No significant difference emerged between Grade 2 and Grade 3 (p = .708).

Table 6. The results of the Independent Samples T-test for ELM

Variable	Group	*N*	*M*	*SD*	*t*	*P*	*d*
Gender	Male	285	3.29	0.90	-1.55	.121	-0.13
	Female	314	3.40	0.77			

Table 7. The results of One-way ANOVA for ELM

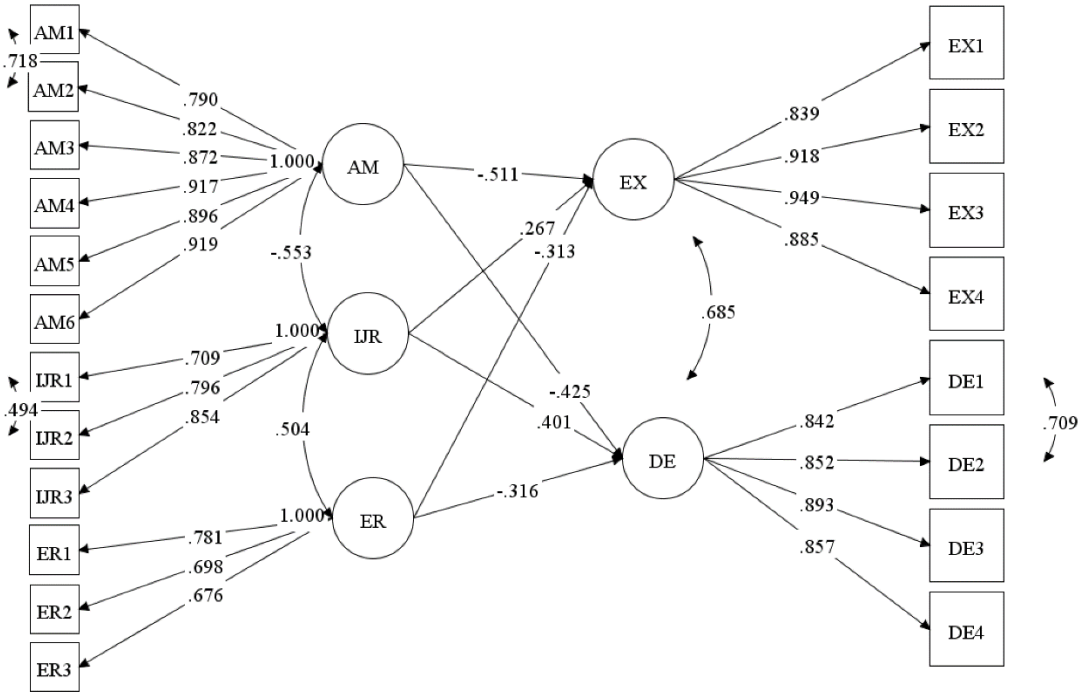
Variable	Group	*N*	*M*	*SD*	*F*	*p*
Grade	Grade 1	221	3.60	0.86	16.49	< .001
	Grade 2	217	3.17	0.86		
	Grade 3	161	3.24	0.70		

3.3. The relationship between students' English learning burnout and motivation

Grounded in self-determination theory and empirical evidence, this study hypothesized that distinct types of English learning motivation are differentially associated with students' English learning burnout. To test this hypothesis, a structural equation model was constructed. The originally hypothesized model specified four motivational factors (intrinsic motivation, identified regulation, introjected regulation, and external regulation) as antecedent variables for the two burnout dimensions (exhaustion and demotivation), and did not fit the data adequately: CFI = 0.888, TLI = 0.870, RMSEA = 0.083, SRMR = 0.062. Based on modification indices (MI > 3.84), standardized residuals, and theoretical considerations, three modifications were made to improve model fit. First, two demotivation items (Q9 and Q10) were removed because their content focused more on perceived efficacy and self-evaluation than on the demotivation dimension's core meaning of reduced interest and enthusiasm. Second, intrinsic motivation and identified regulation were combined into a single first-order factor of Autonomous Motivation. According to SDT (Deci & Ryan, 2000; Ryan & Deci, 2017), both intrinsic motivation and identified regulation represent autonomous forms of motivation, reflecting individuals' tendency to initiate learning out of internal interest and value recognition. They form a continuum of highly self-determined motivation with overlapping conceptual meaning (Ryan & Deci, 2000b). In addition, the items of the two subscales are semantically close, focusing on interest in English and recognition of its value. Third, three correlated residuals were added between items within the same dimension (AM1–AM2, IJR1–IJR2, and DE1–DE2) based on modification indices. These item pairs share similar wording and measurement context (e.g., Q5 and Q6 both refer to a decline in interest or enthusiasm toward English learning; Q11 and Q12 both refer to interest in English; Q17 and Q18 both refer to seeking others' approval). After these modifications, the final model (Figure 1) showed improved fit: CFI = 0.965, TLI = 0.957, RMSEA = 0.049, SRMR = 0.058. The final model explained 50.5% of the variance in exhaustion (R^2 = 0.505) and 50.0% of the variance in demotivation (R^2 = 0.500).

The standardized path coefficients indicated that the three motivational factors showed differential associations with the two burnout dimensions (all $p < .001$). Autonomous Motivation was significantly and negatively associated with both exhaustion (β = -0.511) and demotivation (β = -0.425). Conversely, Introjected Regulation was significantly and positively associated with both exhaustion (β = 0.267) and demotivation (β = 0.401). Notably, External Regulation was also negatively associated with exhaustion (β = -0.313) and demotivation (β = -0.316). This negative association was not anticipated and may reflect the specific features of the exam-oriented context, in which external requirements and structural constraints could shape students' learning experiences in ways that differ from those observed in other settings.

Figure 1. The Structural Model of Associations between Motivation and Burnout



Notes. EX = Exhaustion, DE = Demotivation, AM=Autonomous Motivation, IJR = Introjected Regulation, ER = External Regulation.

4. Discussion

4.1. Levels of students' English learning burnout

The present study found that Chinese senior high school students reported a low level of global English learning burnout, with demotivation being slightly more pronounced than exhaustion. This pattern aligns with Liu and Zhong (2022), who found that demotivation manifested at a moderate level whereas exhaustion remained low among Chinese EFL learners in the exam-oriented context. Learners in such settings are more likely to experience a waning of learning willingness when confronted with rigid English learning tasks and excessive academic evaluation, rather than extreme physical and mental exhaustion. Liu et al. (2024) also found consistent results in a separate sample of Chinese senior high school students, further corroborating this pattern.

Regarding demographic differences, male students exhibited significantly higher global burnout than their female counterparts, consistent with prior research across diverse educational

contexts and cultural settings (Jahedizadeh et al., 2015; Wu et al., 2018). Wu et al. (2018) reported that male middle school students in China exhibited significantly higher overall burnout than their female peers, with particularly prominent disparities observed in the low efficiency dimension. Similar results were found by Jahedizadeh et al. (2015) among male Iranian EFL students. This gender gap aligns with Meece et al. (2006), who found that gender differences in motivation-related beliefs tend to follow gender role stereotypes, with girls reporting greater confidence and interest in language arts.

Regarding grade differences, Grade 2 students scored the highest in global burnout, followed by Grade 3 and Grade 1 students. This presents a nuanced difference from the findings reported by H. W. Wu et al. (2024), who found that older students in higher grades were progressively less likely to belong to low- or moderate-burnout profiles. While both studies indicate increased vulnerability during the middle phase of senior high school, the lower burnout scores in Grade 3 in the present study may reflect the specific academic context of this grade level. Grade 2 represents a critical period beyond the initial adaptation of Grade 1, yet students face intensified curriculum demands and mounting Gaokao pressure, whereas Grade 3 students may benefit from clearer temporal proximity to the examination and more focused coping efforts.

4.2. Levels of students' English learning motivation

The study found that students reported a moderate level of global English learning motivation, with autonomous motivation (intrinsic motivation and identified regulation) dominating over controlled motivation (introjected regulation and external regulation). The high levels of autonomous motivation indicate robust internalized learning motivation, characterized by genuine interest in English learning and recognition of its personal and instrumental value (Ryan & Deci, 2017). In contrast, the relatively low levels of controlled motivation suggest minimal influence of external pressures or internal guilt on students' learning behavior. Consistent with prior research, high autonomous motivation is positively associated with academic achievement and emotional adjustment, whereas low controlled motivation correlates with fewer maladaptive outcomes (Howard et al., 2021; Noels et al., 2019). These results support SDT's proposition that optimal learning outcomes stem from internalized values and genuine interest, rather than external controls or internal pressures.

No significant gender difference emerged in global ELM in this study. Similarly, in a study of 723 primary learners in Hong Kong, Guo et al. (2023) found no significant gender differences in English learning motivation, despite examining a younger learner population. This convergence of findings across different educational stages and sociocultural contexts suggests that the standardized, examination-oriented nature of EFL instruction may attenuate gender disparities in global motivation, as both male and female students navigate similar institutional pressures and curricular demands.

Regarding grade differences, Grade 1 students reported the highest motivation, followed by Grade 3 and Grade 2. This pattern indicates lower English learning motivation among Grade 2 and Grade 3 students than among Grade 1 students, with the largest difference occurring between Grades 1 and 2**.** The pattern differs from that reported by H. Li et al. (2024), whose MANOVA results revealed higher reading motivation in senior than junior secondary students. This discrepancy may reflect methodological differences: H. Li et al. (2024) compared between

stages, whereas this study focused on intra-stage variations within senior high school. One possible interpretation draws on Cao and Wu's (2025) framework of Directed Motivational Currents (DMC) and academic emotions. They reported moderate DMC and enjoyment but high anxiety among Grade 2 students, with DMC negatively related to anxiety and positively associated with enjoyment and achievement. This pattern may help explain why Grade 2 students reported lower motivation, given the intensified academic pressure and early Gaokao preparation stress at this stage.

4.3. The relationship between students' English learning burnout and motivation

The path analysis results were largely consistent with the hypothesized associations between autonomous motivation, introjected regulation, and the two burnout dimensions, and align with both SDT and prior empirical evidence on the motivation–burnout link (Ma, 2024; Xu et al., 2021). Specifically, autonomous motivation, operationalized as a single first-order factor combining intrinsic motivation and identified regulation, was negatively associated with both exhaustion and demotivation. From an SDT perspective**,** autonomous motivation reflects a high level of self-determination derived from internal interest and personal value recognition, which facilitates the satisfaction of basic psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2000b). Such engagement is theorized to foster psychological vitality, emotional resilience, and sustained involvement, thereby lowering vulnerability to emotional exhaustion and motivational loss. This finding **is** consistent with prior research identifying autonomous motivation as a correlate of positive academic and emotional outcomes (Howard et al., 2021).

In addition, introjected regulation was positively associated with both exhaustion and demotivation. As a typical form of controlled motivation, introjected regulation originates from internal pressures such as the pursuit of approval, avoidance of guilt, or contingent self-esteem (Ryan & Deci, 2017). Unlike autonomous motivation, this type of regulation does not facilitate basic psychological need satisfaction and instead tends to be accompanied by internal tension, emotional anxiety, and psychological energy depletion (Yu et al., 2022). Over time, such internal conflicts may increase students' likelihood of feeling emotionally drained and gradually losing enthusiasm for English learning.

Unexpectedly, external regulation was also negatively associated with both exhaustion and demotivation, which contradicted the initial hypotheses that posited positive relationships. As the least autonomous form of motivation, external regulation is driven by external rewards, punishments, or social demands (Ryan & Deci, 2000a). Although SDT generally views external regulation as less adaptive in the long term, in the high-pressure Gaokao-oriented educational environment, clear external requirements and structural constraints may offer temporary behavioral guidance and be associated with lower stress caused by uncertainty. Drawing upon control-value theory (Pekrun, 2006), one possible interpretation is that external structure may reduce uncertainty and decisional burden in high-stakes examination contexts. This finding suggests that in exam-oriented settings, external regulation may be negatively associated with burnout, although this association should be interpreted with caution and warrants further investigation.

5. Limitations and future research

This study has several limitations. First, the sample was drawn from a single rural senior high school using convenience sampling, which limits the generalizability of the findings. Second, the cross-sectional design captures only one time point, which limits causal interpretation**.** Third, all variables were measured via a single self-report questionnaire, which may introduce common method variance. Fourth, measurement invariance across gender was not tested, so the gender-related findings should be treated as preliminary. Two measurement decisions were made in the SEM: intrinsic motivation and identified regulation were combined into a single first-order Autonomous Motivation factor, and two demotivation items were removed. Although combining the two autonomy-based subtypes is consistent with SDT, it may obscure potentially differential associations with burnout; removing two items also narrows the demotivation construct relative to Liu and Zhong (2022). Finally, the nested structure of students within classes was not modeled, so clustering effects could not be assessed**.** Future research could adopt longitudinal designs to clarify temporal ordering and compute ICCs with cluster-robust estimation where sufficient clusters are available. Mixed-methods designs may further illuminate the motivational dynamics observed here. Future work could also further examine the distinct role of external regulation in the motivation–burnout relationship, given its unexpected negative association**.**

6. Conclusion

This study investigated the relationship between English learning burnout and motivation among Chinese senior high school students within the self-determination theory framework, using structural equation modeling to analyze data from 599 participants. The findings revealed that students generally reported low levels of burnout and moderate levels of motivation, with autonomous motivation dominating over controlled forms. Demographic differences were also observed: male students and Grade 2 students reported higher burnout, while motivation was lower among Grade 2 and Grade 3 students than among Grade 1 students. Regarding the associations between motivation and burnout, autonomous motivation was negatively associated with both exhaustion and demotivation, whereas introjected regulation was positively associated with both. Unexpectedly, external regulation was also negatively associated with burnout, which merits further investigation. The findings carry several pedagogical implications. First, educators should remain attentive to students at greater risk of burnout, particularly males and Grade 2 students, by fostering supportive classroom environments that enhance emotional well-being and sustain learning initiative. Second, it is important to stimulate intrinsic motivation and value internalization rather than relying excessively on external pressure. Third, although external regulation may temporarily support learning behavior, its effects are unlikely to be sustainable; teachers should therefore guide students toward genuine internalization of external requirements into autonomous learning awareness.

Ethics Statement

Written informed consent was obtained from the students' parents or guardians, and assent was obtained from the students.

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References

Alamer, A. (2022). Exploratory structural equation modeling (ESEM) and bifactor ESEM for construct validation purposes: Guidelines and applied example. *Research Methods in Applied Linguistics, 1*(1), Article 100005. https://doi.org/10.1016/j.rmal.2022.100005

Cao, Y., & Wu, B. (2025). The relationship between senior high school students' personality traits and English academic achievement: The mediating effects of directed motivational currents and academic emotions. *English Language Teaching, 18*(12), 85–100. https://doi.org/10.5539/elt.v18n12p85

Chen, B., & Lai, X. (2026). How academic motivation and self-efficacy predict learning burnout: An empirical study of senior English majors in Chinese independent colleges. *BMC Psychology, 14*(1), Article 669. https://doi.org/10.1186/s40359-026-04424-6

Cong, Y., Yang, L., & Ergün, A. L. P. (2024). Exploring the relationship between burnout, learning engagement and academic self-efficacy among EFL learners: A structural equation modeling analysis. *Acta Psychologica, 248*, Article 104394. https://doi.org/10.1016/j.actpsy.2024.104394

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum. https://doi.org/10.1007/978-1-4899-2271-7

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Derakhshan, A., Eslami, Z. R., Curle, S., & Zhaleh, K. (2022). Exploring the predictive role of teacher immediacy and stroke behaviors in English as a foreign language university students' academic burnout. *Studies in Second Language Learning and Teaching, 12*(1), 87–115. https://doi.org/10.14746/ssllt.2022.12.1.5

Guo, W., Bai, B., Zang, F., Wang, T., & Song, H. (2023). Influences of motivation and grit on students' self-regulated learning and English learning achievement: A comparison between male and female students. *System, 114*, Article 103018. https://doi.org/10.1016/j.system.2023.103018

Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science, 16*(6), 1300–1323. https://doi.org/10.1177/1745691620966789

Hsu, T. H. L. (2025). Unveiling the dynamic connection between a socially responsible activity and English learning motivation at a Taiwanese university. *Innovation in Language Learning and Teaching, 19*(4), 316–334. https://doi.org/10.1080/17501229.2024.2354489

Jahedizadeh, S., Ghanizadeh, A., & Ghapanchi, Z. (2015). A cross-contextual analysis of EFL students' burnout with respect to their gender and educational level. *International Journal of English and Education, 4*(3), 10–22. https://ijee.org/ijee/article/view/721

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.

Li, C., Zhang, L. J., & Jiang, G. (2024). Conceptualisation and measurement of foreign language learning burnout among Chinese EFL students. *Journal of Multilingual and Multicultural Development, 45*(4), 906–920. https://doi.org/10.1080/01434632.2021.1931246

Li, H., Wang, C., Gan, Z., & Hoi, C. K. W. (2024). Reading motivation and learning strategies among Chinese EFL learners. *Psychology in the Schools, 61*(5), 1747–1765. https://doi.org/10.1002/pits.23135

Li, X., Liu, H., & Xia, M. (2025). Exploring the role of students' perceived EFL teacher support in academic burnout: The mediating effect of academic buoyancy. *Humanities & Social Sciences Communications, 12*, Article 1203. https://doi.org/10.1057/s41599-025-05589-y

Li, Y., & Zhang, L. (2024). Exploring the relationships among teacher-student dynamics, learning enjoyment, and burnout in EFL students: The role of emotional intelligence. *Frontiers in Psychology, 14*, Article 1329400. https://doi.org/10.3389/fpsyg.2023.1329400

Liao, Y. H., Chen, Y. L., Chen, H. C., & Chang, Y. L. (2018). Infusing creative pedagogy into an English as a foreign language classroom: Learning performance, creativity, and motivation. *Thinking Skills and Creativity, 29*, 213–223. https://doi.org/10.1016/j.tsc.2018.07.007

Liu, C., He, J., Ding, C., Fan, X., Hwang, G. J., & Zhang, Y. (2021). Self-oriented learning perfectionism and English learning burnout among EFL learners using mobile applications: The mediating roles of English learning anxiety and grit. *Learning and Individual Differences, 88*, Article 102011. https://doi.org/10.1016/j.lindif.2021.102011

Liu, H., Jin, L., Han, X., & Wang, H. (2024). Unraveling the relationship between English learning burnout and academic achievement: The mediating role of English learning resilience. *Behavioral Sciences, 14*(12), 1124. https://doi.org/10.3390/bs14121124

Liu, H., & Zhong, Y. (2022). English learning burnout: Scale validation in the Chinese context. *Frontiers in Psychology, 13*, Article 1054356. https://doi.org/10.3389/fpsyg.2022.1054356

Liu, H., Zhong, Y., Chen, H., & Wang, Y. (2025). The mediating roles of resilience and motivation in the relationship between students' English learning burnout and engagement: A conservation-of-resources perspective. *IRAL—International Review of Applied Linguistics in Language Teaching, 63*(2), 1453–1475. https://doi.org/10.1515/iral-2023-0089

Liu, M., & Du, N. (2024). A study of Chinese university students' English learning motivation, anxiety, use of English and English achievement. *Sustainability, 16*(19), 8707. https://doi.org/10.3390/su16198707

Ma, Y. (2024). The impact of academic self-efficacy and academic motivation on Chinese EFL students' academic burnout. *Learning and Motivation, 85*, Article 101959. https://doi.org/10.1016/j.lmot.2024.101959

Mardia, K. V. (1974). Applications of some measures of multivariate skewness and kurtosis in testing normality and robustness studies. *Sankhyā: The Indian Journal of Statistics, Series B, 36*(2), 115–128.

Meece, J. L., Glienke, B. B., & Burg, S. (2006). Gender and motivation. *Journal of School Psychology, 44*(5), 351–373. https://doi.org/10.1016/j.jsp.2006.04.004

Noels, K. A., Lascano, D. I. V., & Saumure, K. (2019). The development of self-determination across the language course: Trajectories of motivational change and the dynamic interplay of psychological needs, orientations, and engagement. *Studies in Second Language Acquisition, 41*(4), 821–851. https://doi.org/10.1017/S0272263118000189

Oga-Baldwin, W. Q., & Nakata, Y. (2017). Engagement, gender, and motivation: A predictive model for Japanese young language learners. *System, 65*, 151–163. https://doi.org/10.1016/j.system.2017.01.011

Oxford, R. L., & Burry-Stock, J. A. (1995). Assessing the use of language learning strategies worldwide with the ESL/EFL version of the Strategy Inventory for Language Learning (SILL). *System, 23*(1), 1–23. https://doi.org/10.1016/0346-251X(94)00047-A

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review, 18*(4), 315–341. https://doi.org/10.1007/s10648-006-9029-9

Rose, H., Mckinley, J., & Baffoe-Djan, J. B. (2019). *Data collection research methods in applied linguistics*. Bloomsbury Academic.

Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54–67. https://doi.org/10.1006/ceps.1999.1020

Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.

Song, Y. (2024). Assessing the interactions between learning enjoyment, motivation, burnout, and grit in EFL students: A mixed-methods approach. *BMC Psychology, 12*(1), 796. https://doi.org/10.1186/s40359-024-02303-6

Sun, Y., Teo, T., & Wang, T. H. (2022). English-learning motivation among Chinese mature learners: A comparative study of English and non-English majors. *Behavioral Sciences, 12*(5), 135. https://doi.org/10.3390/bs12050135

Wu, D., Ma, Y., & Wang, F. (2018). EFL students' burnout in English learning: A case study of Chinese middle school students. *Asian Social Science, 14*(4), 38. https://doi.org/10.5539/ass.v14n4p38

Wu, H., Zeng, Y., & Fan, Z. (2024). Unveiling Chinese senior high school EFL students' burnout and engagement: Profiles and antecedents. *Acta Psychologica, 243*, Article 104153. https://doi.org/10.1016/j.actpsy.2024.104153

Wu, H. W., Wang, Y. S., & Wang, Y. L. (2024). How burnout, resilience, and engagement interplay among EFL learners: A mixed-methods investigation in the Chinese senior high school context. *Porta Linguarum*, (9), 193–213. https://doi.org/10.30827/portalin.viIX.29878

Xu, L., Wang, H., Chen, J., Zhang, Y., Huang, Z., & Yu, C. (2022). English learning stress, self-efficacy, and burnout among undergraduate students: The moderating effect of mindfulness and gender. *International Journal of Environmental Research and Public Health, 19*(23), Article 15819. https://doi.org/10.3390/ijerph192315819

Xu, R., Wang, Q., Chin, N. S., & Teo, E. W. (2021). Analysis of learning motivation and burnout of Malaysian and Chinese college students majoring in sports in an educational psychology perspective. *Frontiers in Psychology, 12*, Article 691324. https://doi.org/10.3389/fpsyg.2021.691324

Yu, X., Wang, Y., & Liu, F. (2022). Language learning motivation and burnout among English as a foreign language undergraduates: The moderating role of maladaptive emotion regulation strategies. *Frontiers in Psychology, 13*, Article 808118. https://doi.org/10.3389/fpsyg.2022.808118

Zhang, S., & Lai, C. (2024). Out-of-class English learning anxiety and its relation to motivation among Chinese university English majors. *System, 124*, Article 103384. https://doi.org/10.1016/j.system.2024.103384

Zhang, Y., & Wang, H. (2023). Effect of English learning motivation on academic performance among English majors in China: The moderating role of certain personality traits. *Psychology Research and Behavior Management, 16*, 2187–2199. https://doi.org/10.2147/PRBM.S407486